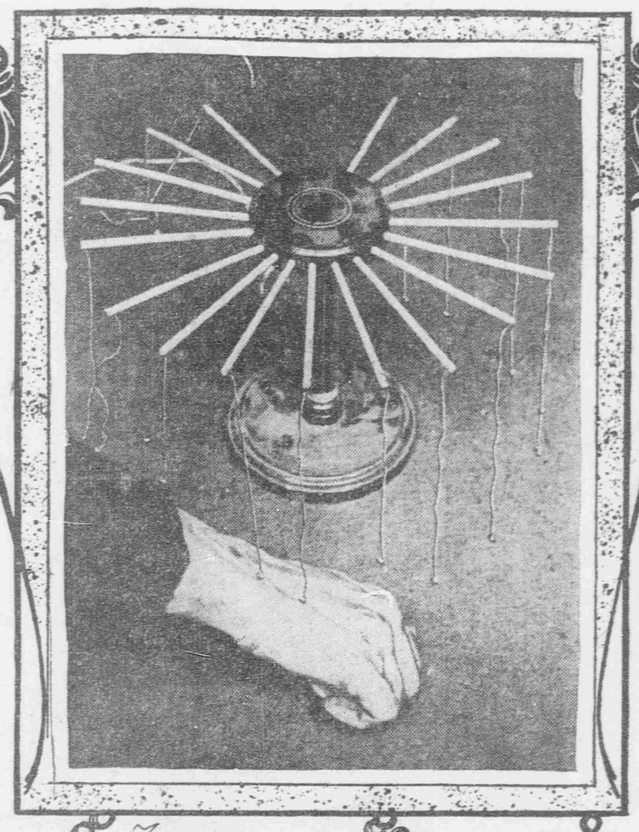
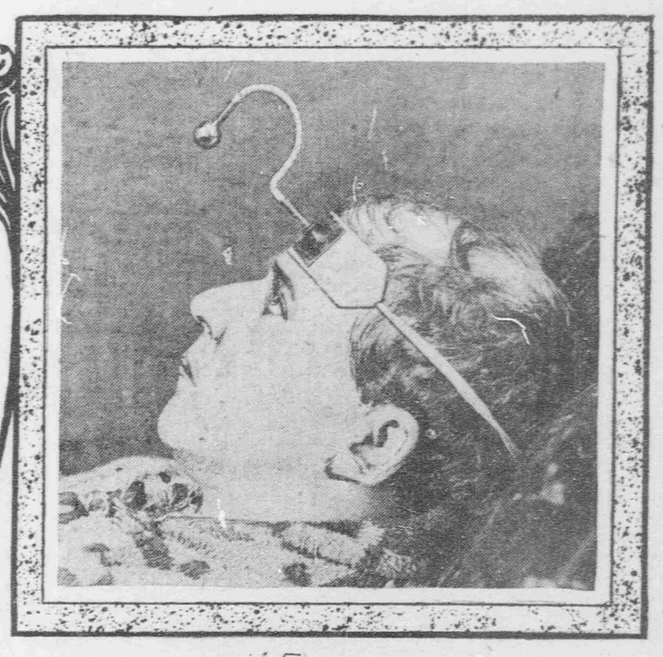
MECHANICAL MARVELS REVEAL SECRETS OF THE HUMAN MIND

MEASURING HAND'S POWER OF ENDURANCE



MEASURING THE SENSE OF TOUCH



THE FASCINATOR

Uncle Sam Is Calling In an Amazing Mechanical Physician to Diagnose the Mental and Moral Ailments of Five Hundred Thousand Criminals in the Various Prison-Hospitals of the United States—Most Notable Invention of the Century.

A Machine That Measures the Thoughts and Senses and Determines the Why and Wherefore of Moral Invalids, Fully Explained.

IF that master physician Aesculapius should drop in at the Bureau of Education in Washington and watch Special Director Arthur MacDonald experimenting on his mental and moral patients he would doubtless rub his eyes and pinch himself to see if he were really not woolgathering; for some of the most remarkable results in the annals of materia medica are being obtained by Uncle Sam with his so-called instruments of precision there in operation.

So remarkable are some of these results that were the age of miracles not over one might be tempted to question the evidence of his senses in witnessing the things there accomplished. Secondary in importance to no discovery of recent times is the curious mechanical physician now being called in by Uncle Sam to diagnose the mental and moral patients—alias criminals—in his extensive household of eighty million persons.

Six hundred million dollars is the approximate sum annually expended in detecting, capturing, diagnosing and attempting to cure the five hundred thousand moral invalids in various wards of the great prison-hospital supported by the United States. By means of this new and practical invention or the study of the conditions which foster crime it is believed that criminal contagions will soon be a thing of the past. Uncle Sam is going about his experiment with the idea that an ounce of prevention is worth a pound of cure.

Special Director MacDonald has just completed a number of diagnoses of the cases of school children—those enrolled in the unruly and recalcitrant class. His diagnoses have in many cases been amazing and at the same time practical. His ounce of prevention is primarily the correting of defective senses by increasing their scope after the diagnosis is made by the instrument, which might be called a mechanical Planchette.

Measuring Thoughts.

One of the most interesting and recent experiments has just been made to determine the speed and duration of thought. The subject sits with his hand on an electric switch connected with an electric clock which measures the smallest fraction of a second. Opposite the subject is an upright metal tube, inside of which runs a slender rod of steel. Opposite the eyes of the subject is an opening in the tube.

As the rod slides down the interior of the tube, a white disk appears at the orifice. The exact second this appears the rod touches a spring at the bottom of the tube, and the clock is set in motion. The subject is instructed to stop the clock just as soon as the white disk appears. This he does, for thirty times. The length of time required for him to do this is noted, and an average struck. This average is called his physiological time.

Now the subject is told that the disc appearing may be a colored one. If so, he is to stop the clock. Should it be white, he is to pay no attention to it.

Stopping the Clock.

The time required to stop the clock at the appearance of a colored disk is always longer, and when the physiological time is subtracted from the longer time, the remainder is called the mental time—or, in other words, it represents the time of the object fixing itself on the eye, its passage along the optic nerve to the brain, the action of the brain and the impulse of the will directing, through the nerves, the finger to act.

The same experiment is done with two names—like Shakespeare and Milton. The subject is required to say which he thinks the greater writer. Or associated subjects are used—the experimenter pronounces the word sky, whereupon the subject must give a word related to or suggested by the sky, such as blue.

Measuring Fatigue.

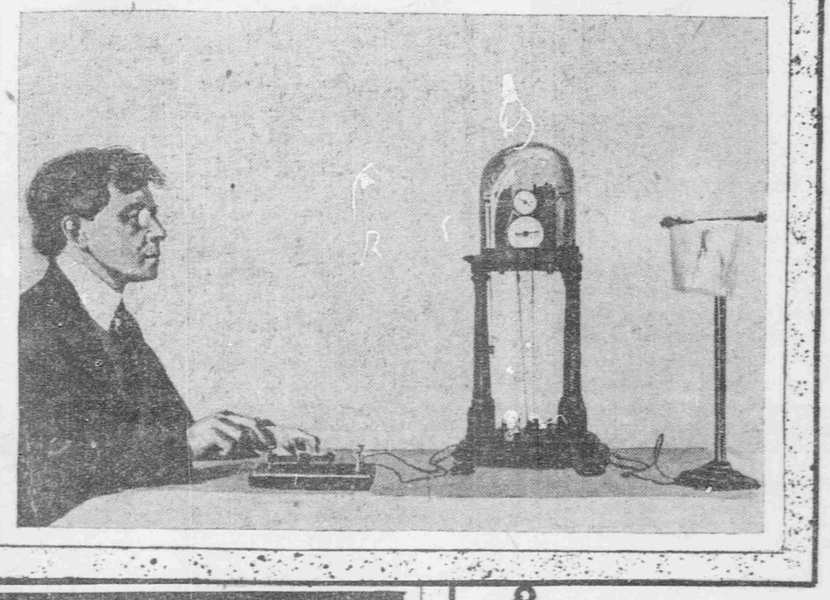
Another interesting instrument is the ergograph, which is used to measure fatigue. The record is made by a marker, attached to a little car, which slides to and fro on two parallel horizontal steel rods. A string is fastened by a leather loop to the finger, pulling the car in one direction, while a weight, attached to the car by a cord, pulls it in another. When the finger is bent the car moves toward the hand; when the muscles relax, the weight causes car and finger to return to their original positions. The marker records the movements of the car on a cylinder.

Lombard, who made a number of experiments upon himself with this instrument, found that if he voluntarily and frequently contracted a muscle and each time raised a weight with his utmost force that the muscle weakened and after a time scarcely stirred the weight. But if he continued to make this effort, regardless of the results, and at the same time using all the power of his will, sooner or later the strength of the muscle began to return and to move the weight about as much as before.

This strength would gradually diminish for a second time. Thus an almost complete loss of power over the muscle alternated with periods of nearly complete recovery of strength. This phenomenon, according to Lombard, was due to the results of fatigue, caused probably by changes in the central nervous system.

There are a number of phenomena in which fatigue causes a periodicity depending upon the central nervous system. This is probable in the second wind of the athlete. Questions of the relation of muscular to mental fatigue are not only of theoretical interest, but have practical value in schools.

THE SCIENTIFIC PLANCHETTE RECORDS INVOLUNTARY MOVEMENT OF THE HAND



MEASURING SPEED OF THOUGHT

The Sense of Touch.

Another instrument consists of touchweights. These are used for finding the threshold of contact with the skin, and consist of little discs three millimeters in diameter suspended from a fine cocoon fiber fastened to a wooden handle. The handles are stuck into holes around a block, as a pillar and frame. The lightest disc is taken out and touched on the skin, the subject having his eyes closed. If nothing is felt, the next heavier disc is used, and so on until the pressure is noticeable.

The discs weigh from one to twenty milligrams. The threshold of sensation for sense of pressure in an average person is two milligrams on the forehead, temple and back of forearm, five for nose and chin and fifteen for the inner surface of the fingers.

Involuntary Hand Movements.

Another form of the Planchette is used for reading the involuntary motion of the hand. A person places his hand on the instrument and some mental task is given, as, for instance, multiplying 488 by 9. The average person makes a variety of involuntary motions in this process, while the practiced hand of a mathematician moves almost imperceptibly.

The Fascinator.

Hypnotism is also a subject which comes to the front in this study of man. In the scientific method a small mechanical arrangement is clasped about the forehead, from which protrudes a minute metallic ball. He is told to look steadily at this ball. To do so he must look upward at an angle most tiring to the eyelids. The operator, after a while, suggests that the lids are tired, thus increasing the consciousness of the fact. He then follows out the natural association of the tired eyelids upon tired eyes by suggesting that the subject is sleepy, and soon places him in a natural—if the term may be used—hypnotic slumber.

It has been shown that by repeated suggestions during hypnotic sleep, during which time suggestions have greater weight and a more immediate and lasting effect, that it is possible to develop the faculty of attention and to correct evil instincts in vicious, unruly and obstinate children. It is insisted, however, that such means should not be adopted until all others fail, and should always be under the direction of a competent physician.

Dr. Berillon has accomplished by this method the cure of cases of kleptomania, lying, biting of the finger nails, fear of the dark and cowardice. It is scientifically shown that in hypnotism there are the elements of a true experimental pedagogy.

The object of the use of suggestion in this relation is to correct impulses and automatic habits in children and to bring out their natural aptitudes, which have been arrested or in some way diverted in their development. It is possible to modify characters, correct acquired habits and increase the power of both attention and memory by means of this wonder working Planchette, or more or less mechanical physician.

HOW CRIMINALS ARE SOUGHT OUT BY THE FAMOUS PARIS SURETE

SINCE Cain and Abel came to blows, following the affair of the apple, crime and the detection of crime have been absorbing and sometimes lucrative occupations. Crimes are of two sorts—the artistic and the crude, the former being the emanation of mental and the latter of brute force.

New York has its Mulberry Street. London has its Scotland Yard. Paris has its La Surete. With the former the reader is probably more or less familiar in a general way, as well as of Scotland Yard. But the Parisian Scotland Yard is a trifle more obscure in the American mind.

A Famous Trick.

One of the criminal pestilences which afflict the wayfaring public in Paris is known as the trick of Father Francois. Any one who has never been a victim of this heir of the inquisition should offer up a devout prayer of thankfulness. Hardly a Parisian even can tell you who Father Francois was. Nevertheless the trick for which he stands sponsor remains one of the most effectual methods known to the American footpad for relving a wayfarer on a dark night and in a secluded street of such valuables as may encumber him.

Properly executed, the trick of Father Francois is not devoid of artistic merit, or demerit. Any person whose steps lead him Parisward may see the interesting of the French metropolis, who select the dry moat of the ancient fortifications as a playground, practising this trick and others in sheer wantonness among themselves.

How It Is Done.

All that is required is for the practitioner to have a large bandana—usually of silk for the sake of strength. A former professor of the art has described the modus operandi to a writer somewhat as follows:

Take a strong silk muffler and secure an accomplice. These are the most necessary ingredients to the recipe. The next is a belated wayfarer of substantial appearance who must be followed. Should the street be well lighted or you have reason to suspect that any one is observing you—be careful. Arrange to be slightly in advance of the victim by the time he reaches a deserted spot. Stop in an unconcerned manner as if to light a cigarette while the candidate for highwaymaning attempts to pass. Quickly drop the match, take a firm grip of each end of the muffler and swing it over your own head and over the head of your man so that it goes under his chin. At the same moment wheel around, bend slightly forward and in so doing lift the victim off the ground by the neck.

A Cunning Recipe.

Being half suffocated, he has no time to do anything wiser than to think—and thought is very harmless under the circumstances. Meanwhile the accomplice, who is worthy of the name, has come up while you maintain a firm hold on the muffler and begins exploring the pockets of the victim.

If this recipe is followed carefully the victim—unless he be a glutton for punishment—will be surfeited.

Messieurs Robert and Bourlet—lineal descendants of Monsieur Lecoq—confirm the accuracy of this description. In nine cases out of ten the trick is performed successfully, and it is the bete noir of the Parisian detective—in flesh and blood a very different individual to that portrayed in the pages of Gaboriau and Poe.

Must Have Clean Score.

Possibly he is not so supernaturally clever; assuredly he has few or none of the bad traits charged to his account so liberally. No repentant criminals are accepted as members of the force nowadays, and every man has to show an exceptionally clean record before his candidature will even be considered.

The false beards and other similar disguises so liberally employed by romancers are very rarely, or rather never, resorted to in reality. All the detective needs to do in ninety-nine cases out of a hundred, in order to hide his identity, is to adopt the mode of dress, gesture and language of the profession he momentarily finds it necessary to follow. To do this effectually, it need hardly be pointed out, something very nearly approaching to histrionic genius is required, superadded to a supreme degree of courage and presence of mind and an utter disregard of personal danger. Each of the two detectives referred to above, MM. Robert and Bourlet, have been face to face with death a hundred times in the course of their career, and, with their experiences alone, volumes might be written in which tragedy and comedy would be found closely interwoven.

Monsieur Robert has made a specialty of arresting coiners, perhaps, as a class, the most desperate and cunning of criminals. At a moment's notice he is ready to transform himself into a butcher, a baker, or a cabinet-maker, and can kill an ox, cut off a beefsteak, or chaffer the price of damaged vegetables or fish in the markets as if he had never done anything else all his life.

A Famous Arrest.

His colleague, Bourlet, dwells complacently on his arrest of a redoubtable athlete and wrestler, who exhibited his prowess at all the faire in France. There was strong reason to suspect that the fellow had perpetrated a particularly brutal murder, but the evidence was not strong enough to warrant his arrest, and he was so guarded in his speech that he had never committed himself. The case was entrusted to M. Bourlet, who himself is a man with biceps of very respectable size. There was nothing for it but for Bourlet to adopt the character of a professional strong man, which he did. He succeeded in getting an engagement in the same troupe as the suspected murderer, fought and wrestled until he was covered with bruises without a murmur, and, finally, one evening was made a confidant, and thus learned the true history of the ruffian. Bourlet whipped out a warrant and a pair of handcuffs from his pocket, and marched off his prisoner, whose dense brain was unable to grasp the reality of the occurrence until all attempt at resistance was hopeless.

Messieurs Robert and Bourlet have each about eighty detectives under their immediate orders. The entire corps numbers 500.

The Surete has two chiefs, Cochefort and Hamard, both names that readers of daily newspapers have constantly under their eyes. The former is the prudent administrator with long experience, while Hamard is the very heart and soul of the active service. In the space of eight years he has himself effected over 5,000 arrests, and there has only been one solitary affair in which he has been engaged when he has not found the culprit, which surely speaks volumes for the careful and efficient organization of his service.

The two chiefs are always ready to show their subordinates the way in any dangerous cases. Quite recently, Hamard was obliged to arrest with his own hands, and almost without assistance, a murderer who had shut himself into a room. The man was armed with a cavalry sabre and a siphon of soda water, and threatened to kill whoever entered. It was very important to take him living. Hamard, who is a very powerful man, threw himself against the door with such force as to tear it from its hinges. He fell with it on the top of the man, who was thus caught in his own trap, and scarcely scratched his captor.

Detectives Poorly Paid.

A man who wished to make a fortune could scarcely be advised to choose the career of a French detective. An Inspector of the Surete receives $320 per annum to begin with, and if he is lucky may eventually hope to get $600. This is his regular salary, which is slightly increased by premiums on the arrests he effects. When he is sent on a journey he has expenses allowed to him at the rate of $2 a day in France and $3 abroad. After twenty-five years in harness he becomes entitled to a pension of from $240 to $360 per annum.

Judged by American standards, these are not exactly brilliant conditions, and yet anybody who has been brought into contact—into voluntary contact, that is to say—with the French police, whether the Surete, or the Municipal Police of Paris, can hardly fail to be struck by the devotion to duty, the esprit de corps and the high level of integrity that marks it.